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EXAMINER

EBIRIM, EMEKA

ART UNIT PAPER NUMBER

2166

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/752,384

Applicant(s)

MCSHERRY, FRANK DAVID

Examiner

Emeka Ebirim

Art Unit

2166

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/5/05/5/18/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Status

1. Claims 1-19 are pending in this Office action.

The application has been examined. Claims 1-19 are rejected as detailed below and are pending in this office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-3, 10-12, 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, 10, and 17 it is not clear how to compute the three (V.sub.k, S and U.sub.k.sup.T) matrices based on parameter k.

Claim 11-12 fails to resolve the deficiency of the independent claim and as such inherit claim 10 rejection.

Claim 3 fails to resolve the deficiency of its preceding claim 2 and as such inherit its rejection.

Claim 18 and 19 fails to resolve the deficiency of its preceding claim 17 and as such inherit its rejection.

Art rejection cannot be applied to claims 2-3, 10-12, 17-19 because the scope or the claims cannot be ascertained.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application with useful, concrete and tangible result.

5. Claims 1-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 4-12 are not statutory because they merely recite a number of computing steps without producing any tangible result and/or being limited to a practical application. The claims appear to constitute solely an abstract idea.

Furthermore for claims 10-11, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers does not manipulate appropriate subject matter and thus cannot constitute a statutory process.

Claim 1-3, 13-15 are not limited to tangible embodiments. These claims appear to constitute solely software per se without any practical application.

Claims 16-19 are not limited to tangible embodiments. In view of Applicants disclosure, specification [paragraph 0024] medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g. CD-

Art Unit: 2166

ROM disks, [page 7, Para 0024]) and intangible embodiments (e.g. wireless media, [Para 0026, line 8]).

As such, the claims are not limited to statutory subject matter and are therefore non-statutory

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 4 and 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Pub No: 2005/0033742 to Kamvar et al (hereinafter Kamvar).

Claim 1.

Kamvar discloses:

A system for searching web pages comprising:

a database for storing connectivity information about the web pages [link database, Para 0007]; and

a page-grading engine associated with an approximation matrix Q' , where Q' approximates an ideal matrix Q with respect to the connectivity information (ranks are

good approximation to the actual ranks; page ranks are calculated using $N \times N$ link matrix) [matrix, Para 0005, 0007];

wherein the page-grading engine receives as input a personalization description v describing a set of preferences among the web pages, and grades search results with respect to Q' and v (customized (or personalized) link matrix B') [ranking (page grading), Para 0026-0027].

Claim 4.

Kamvar discloses:

A method of grading objects from an interconnected collection of weighted objects, the weights of the objects described by a description v , and the interconnection of the objects described by a description P , the method comprising [Fig 6 Para 20]:

applying a grading function Q' to the description v for the objects to determine a set of grades for the objects (determination of ranks (grading function)) [Para 0018, 0021]; and

assigning at least one object the corresponding determined grade for that object [node ranking, Para 0018];

wherein the grading function Q' approximates an ideal grading function Q , where applying ideal grading function Q to the description v produces ideal grades with respect to description P for every object in the interconnected collection of weighted objects (customized (or personalized) link matrix B') [ranking (page grading), Para 0026-0027].

Claim 13.

Kamvar discloses:

A system for grading objects from an interconnected collection of weighted objects comprising:

a description v of the weights of the objects [personalization weights v , See Kamvar Para 0026];

a description P of the interconnection of the objects (links between elements) [link matrix (interconnection), See Kamvar Para 0026]; and

an object-grading engine for approximating an ideal grading function Q with an approximate function Q' , where applying ideal grading function Q to the description v produces ideal grades with respect to description P for every object in the interconnected collection of weighted objects, and for assigning at least one object the grade produced for that object by an application of Q' to v (customized (or personalized) link matrix B') [ranking (page grading), Para 0026-0027].

Claim 14.

Kamvar discloses the elements of claim 13 as above and furthermore it discloses a search engine in connection with the object-grading engine, wherein the object grading engine grades objects passed from the search engine (rank (grade) search results) [Kamvar Para 0031].

Claim 15.

Kamvar discloses the elements of claim 13 as above and furthermore it discloses wherein the objects are web pages [Kamvar Para 0007].

Claim 16.

Kamvar discloses:

A computer-readable medium including computer-executable instructions facilitating the grading of web pages, the web pages interconnected corresponding to a matrix P, computer-executable instructions executing the steps of [Para 0026-0027]:

computing a representation of an approximation matrix Q' to an ideal matrix Q (customized (or personalized) link matrix B' from Matrix B) [ranking (page grading), Para 0026-0027]; and

applying Q' to a personalization vector v to obtain grades of the web pages (customized (or personalized) link matrix B' from Matrix B; personalization weights v) [ranking (page grading), Para 0026-0027].

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2166

9. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamvar in view of "Fast Computation of Low Rank Matrix Approximations" to Dimitris Achlioptas et al (hereinafter Achlioptas) provided by the applicant.

Claim 5.

Kamvar discloses the elements of claim 4 as above but does not explicitly indicate "low-rank optimal approximation" [see Achlioptas section 1.1 and 3].

It would have been obvious to one of ordinary skill in the art to have combined the cited references because "low-rank optimal approximation" as disclosed by Achlioptas would have enabled Kamvar to capture the degree of freedom of its entries thus retaining only the most pertinent characteristics of the data [See Achlioptas section 1.1].

10. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamvar and Achlioptas as applied to claim 5 above, and further in view of Patent No: 6,285,999 (hereinafter Page).

Claim 6.

The combination of Kamvar and Achlioptas discloses the elements of claim 5 as above but does not explicitly indicate the element of claim 6. Page discloses the claimed element wherein entry $P[i,j]$ in matrix P represents the probability of reaching one object i from another object j in one step of a random walk among the weighted

Art Unit: 2166

objects [random jump, probability, See Page Col 5 lines 25-30, Col 6 lines 15-20, 40-43 Fig 2-3].

It would have obvious to one of ordinary skill in the art to have combined the cited reference because probability of reaching one object from another object in one step of a random walk (random walk) would have enabled Kamvar to limit the extent to which a document's rank can be inherited by children documents.

Furthermore it helps to model the typical jumping of users to a different place in the web after following a few links [Page Col 6 lines 50-60].

Claim 7.

The combination of Kamvar, Achlioptas and Page discloses the elements of claim 6 as above and furthermore Page discloses wherein at each step of the random walk there is a fixed probability c that the walk will reset, and that the random walk then continues from object a with probability $v[a]$ [random jump, probability, See Page Col 5 lines 25-30, Col 6 lines 15-20, 40-43 Fig 2-3].

Claim 8.

The combination of Kamvar, Achlioptas and Page discloses the elements of claim 7 as above and furthermore Page discloses wherein the ideal grade of an object b is the probability of arriving at object b at a step of the random walk [random jump, probability, See Page Col 5 lines 25-30, Col 6 lines 15-20, 40-43 Fig 2-3].

Claim 9.

The combination of Kamvar, Achlioptas and Page discloses the elements of claim 5 as above and furthermore Page discloses wherein the objects are web pages [Web, See Page Col 6 lines 50-60].

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the accompanying PTO-892 form.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emeka Ebirim whose telephone number is 571-272-3994. The examiner can normally be reached on 8:30pm - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam, can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emeka Ebirim
Examiner
Art Unit 2166

July 18, 2006



KHANH B. PHAM
PRIMARY EXAMINER